

WE CLAIM:

1. A solar electrolysis power source, comprising:
  - a source of water;
  - an electrolysis unit, wherein said electrolysis unit is connected with said source of water and receives water from said source of water, and wherein
  - 5 said electrolysis unit provides the electrolysis of said water and produces hydrogen gas and oxygen gas;
  - a solar panel, wherein said solar panel is connected with said electrolysis unit, and wherein said solar panel receives solar rays and provides electrical energy to said electrolysis unit;
  - 10 a hermetically sealed compressor, wherein said hermetically sealed compressor is connected with said electrolysis unit, and wherein said hermetically sealed compressor receives said hydrogen gas from said electrolysis unit;
  - a hydrogen tank, wherein said hydrogen tank is connected with
  - 15 said hermetically sealed compressor, and wherein said hydrogen tank receives said hydrogen gas from said hermetically sealed compressor; and
  - a fuel cell, wherein said fuel cell is connected with said hydrogen tank, and wherein said fuel cell receives said hydrogen gas from said hydrogen tank.
2. The solar electrolysis power source of claim 1, further comprising a system controller, wherein said system controller is connected with said solar panel, said electrolysis unit, said hermetically sealed compressor, and said hydrogen tank.
3. The solar electrolysis power source of claim 1, further comprising an AC power source, wherein said AC power source is connected with said electrolysis unit, and wherein said AC power source provides electrical energy

to said electrolysis unit.

4. The solar electrolysis power source of claim 3, wherein said system controller connects said AC power source with said electrolysis unit.

5. The solar electrolysis power source of claim 1, wherein said electrolysis unit comprises:

an electrolysis chamber, wherein said electrolysis chamber is connected with said source of water, and wherein said electrolysis chamber  
5 receives water from said source of water;

a cathode located within said electrolysis chamber, wherein said cathode is connected with said solar panel creating a negative charge at said cathode;

an anode located within said electrolysis chamber, wherein said  
10 anode is connected with said solar panel creating a positive charge at said anode;

a pH sensor located within said electrolysis chamber;

a water level sensor located within said electrolysis chamber;

a water fill inlet including a water fill valve, wherein said water fill  
15 inlet connects said electrolysis chamber with said source of water;

an electrolyte tank containing an electrolyte and including an electrolyte fill inlet and an electrolyte fill valve, wherein said electrolyte fill inlet connects said electrolyte tank with said electrolysis chamber;

an oxygen vent including an oxygen vent valve, wherein said  
20 oxygen vent connects said electrolysis chamber with the outside atmosphere;  
and

a hydrogen vent, wherein said hydrogen vent connects said electrolysis chamber with said hermetically sealed compressor.

6. The solar electrolysis power source of claim 1, wherein said hydrogen tank comprises:

a hydrogen tank fill valve, wherein said hydrogen tank fill valve is located between said hermetically sealed compressor and said hydrogen tank;

5 a hydrogen tank output valve, wherein said hydrogen tank output valve is located between said hydrogen tank and said fuel cell; and

a pressure gauge, wherein said pressure gauge indicates the pressure of said hydrogen gas stored inside said hydrogen tank.

7. The solar electrolysis power source of claim 1, further comprising a data and control bus, wherein said data and control bus connects said system controller with said pH sensor, said water level sensor, said water fill valve, said electrolyte fill valve, said oxygen vent valve, said hydrogen tank fill valve, said hydrogen tank output valve, said pressure gauge of said hydrogen tank, and  
5 said hermetically sealed compressor.

8. The solar electrolysis power source of claim 1, wherein said electrolyte is added to said water contained within said electrolysis chamber creating a pH value between 6 and 7.

9. The solar electrolysis power source of claim 1, wherein said electrolyte is sulfuric acid.

10. A solar electrolysis power source, comprising:
- a source of water;
  - an electrolysis unit, wherein said electrolysis unit is connected with said source of water and receives water from said source of water, and wherein  
5 said electrolysis unit provides the electrolysis of said water and produces hydrogen gas and oxygen gas;
  - a solar panel, wherein said solar panel is connected with said electrolysis unit, and wherein said solar panel receives solar rays and provides electrical energy to said electrolysis unit;
  - 10 an AC power source, wherein said AC power source is connected with said electrolysis unit, and wherein said AC power source provides electrical energy to said electrolysis unit;
  - a hermetically sealed compressor, wherein said hermetically sealed compressor is connected with said electrolysis unit, and wherein said  
15 hermetically sealed compressor receives said hydrogen gas from said electrolysis unit;
  - a hydrogen tank, wherein said hydrogen tank is connected with said hermetically sealed compressor, and wherein said hydrogen tank receives said hydrogen gas from said hermetically sealed compressor;
  - 20 a fuel cell, wherein said fuel cell is connected with said hydrogen tank, and wherein said fuel cell receives said hydrogen gas from said hydrogen tank; and
  - a system controller, wherein said system controller is connected with said solar panel, said AC power source, said electrolysis unit, said  
25 hermetically sealed compressor, and said hydrogen tank.

11. The solar electrolysis power source of claim 10, wherein said electrolysis unit comprises:

an electrolysis chamber including an oxygen chamber and an hydrogen chamber, wherein said electrolysis chamber is connected with said source of water, and wherein said electrolysis chamber receives water from said source of water;

a cathode located within said hydrogen chamber, wherein said cathode is connected with said solar panel creating a negative charge at said cathode;

an anode located within said oxygen chamber, wherein said anode is connected with said solar panel creating a positive charge at said anode;

a pH sensor located within said electrolysis chamber;

a water level sensor located within said electrolysis chamber;

a water fill inlet including a water fill valve, wherein said water fill inlet connects said electrolysis chamber with said source of water;

an electrolyte tank containing an electrolyte and including an electrolyte fill inlet and an electrolyte fill valve, wherein said electrolyte fill inlet connects said electrolyte tank with said electrolysis chamber;

an oxygen vent including an oxygen vent valve, wherein said oxygen vent is connects said oxygen chamber of said electrolysis chamber with the outside atmosphere; and

a hydrogen vent, wherein said hydrogen vent connects said hydrogen chamber of said electrolysis chamber with said hermetically sealed compressor.

12. The solar electrolysis power source of claim 10, further comprising:

a hydrogen tank fill valve, wherein said hydrogen tank fill valve is located between said hermetically sealed compressor and said hydrogen tank;

5 a hydrogen tank output valve, wherein said hydrogen tank output valve is located between said hydrogen tank and said fuel cell;

a pressure gauge, wherein said pressure gauge indicates the pressure of said hydrogen gas stored inside said hydrogen tank; and

10 a data and control bus, wherein said data and control bus connects said system controller with said pH sensor, said water level sensor, said water fill valve, said electrolyte fill valve, said oxygen vent valve, said hydrogen tank fill valve, said hydrogen tank output valve, said pressure gauge of said hydrogen tank, and said hermetically sealed compressor.

13. The solar electrolysis power source of claim 10, wherein said source of water is a water tank holding water.

14. The solar electrolysis power source of claim 10, wherein said AC power source provides a 120 V AC input.

15. The solar electrolysis power source of claim 10, wherein said oxygen gas is vented through said oxygen vent valve to the atmosphere.

16. The solar electrolysis power source of claim 10, wherein said fuel cell provides power to an automobile.

17. The solar electrolysis power source of claim 10, wherein said fuel cell provides power to a portable power tool.

18. A solar electrolysis power source, comprising:
- a water tank holding water;
  - an electrolysis unit, wherein said electrolysis unit is connected with said water tank and receives said water from said water tank, wherein said  
5 electrolysis unit facilitates the electrolysis of said water and produces hydrogen gas and oxygen gas, and wherein said electrolysis unit comprises:
    - an electrolysis chamber including an oxygen chamber and a hydrogen chamber, wherein said electrolysis chamber is connected with said water tank and wherein said electrolysis chamber receives water from said  
10 water tank;
    - a cathode located within said hydrogen chamber, wherein said cathode is connected with said solar panel creating a negative charge at said cathode;
    - an anode located within said oxygen chamber, wherein said  
15 anode is connected with said solar panel creating a positive charge at said anode;
    - a pH sensor located within said electrolysis chamber;
    - a water level sensor located within said electrolysis chamber;
    - 20 a water fill inlet including a water fill valve, wherein said water fill inlet connects said electrolysis chamber with said source water tank;
    - an electrolyte tank containing an electrolyte and including an electrolyte fill inlet and an electrolyte fill valve, wherein said electrolyte fill inlet connects said electrolyte tank with said electrolysis chamber;
    - 25 an oxygen vent including an oxygen vent valve, wherein said oxygen vent connects said oxygen chamber of said electrolysis chamber with the outside atmosphere; and
    - a hydrogen vent, wherein said hydrogen vent connects said hydrogen chamber of said electrolysis chamber with said hermetically sealed  
30 compressor;

a solar panel, wherein said solar panel is connected with said electrolysis unit, and wherein said solar panel receives solar rays and provides electrical energy to said electrolysis unit;

an AC power source, wherein said AC power source is  
35 connected with said electrolysis unit and wherein said AC power source provides electrical energy to said electrolysis unit;

a hermetically sealed compressor, wherein said  
hermetically sealed compressor is connected with said electrolysis unit and  
wherein said hermetically sealed compressor receives said hydrogen gas from  
40 said electrolysis unit;

a hydrogen tank, wherein said hydrogen tank is connected with  
said hermetically sealed compressor, wherein said hydrogen tank receives said  
hydrogen gas from said hermetically sealed compressor, and wherein said  
hydrogen tank comprises:

45 a hydrogen tank fill valve, wherein said hydrogen tank fill  
valve is located between said hermetically sealed compressor and said  
hydrogen tank;

a hydrogen tank output valve, wherein said hydrogen tank  
output valve is located between said hydrogen tank and said fuel cell; and

50 a pressure gauge, wherein said pressure gauge indicates  
the pressure of said hydrogen gas stored inside said hydrogen tank;

a fuel cell, wherein said fuel cell is connected with said hydrogen  
tank, and wherein said fuel cell receives said hydrogen gas from said hydrogen  
tank;

55 a system controller, wherein said system controller is connected  
with said solar panel, said AC power source, said electrolysis unit, said  
hermetically sealed compressor, and said hydrogen tank; and

a data and control bus, wherein said data and control bus  
connects said system controller with said pH sensor, said water level sensor,  
60 said water fill valve, said electrolyte fill valve, said oxygen vent valve, said



hydrogen tank fill valve, said hydrogen tank output valve, said pressure gauge of said hydrogen tank, and said hermetically sealed compressor.

19. The solar electrolysis power source of claim 18, wherein said oxygen is collected in said oxygen chamber of said electrolysis chamber.

20. The solar electrolysis power source of claim 18, wherein said hydrogen is collected in said hydrogen chamber of said electrolysis chamber.

21. The solar electrolysis power source of claim 18, wherein the pH value of said water contained in said electrolysis chamber is maintained between 6 and 7 by adding said electrolyte from said electrolyte tank.

22. A hydrogen-powered vehicle, comprising:  
a solar electrolysis power source that is mounted on said vehicle,  
wherein said solar electrolysis power source comprises:

a water tank holding water;

5 an electrolysis unit, wherein said electrolysis unit is connected with said water tank and receives said water from said water tank, and wherein said electrolysis unit provides the electrolysis of said water and produces hydrogen gas and oxygen gas;

10 a solar panel, wherein said solar panel is connected with said electrolysis unit, and wherein said solar panel receives solar rays and provides electrical energy to said electrolysis unit;

an AC power source, wherein said AC power source is connected with said electrolysis unit, and wherein said AC power source provides electrical energy to said electrolysis unit;

15 a hermetically sealed compressor, wherein said hermetically sealed compressor is connected with said electrolysis unit, and wherein said hermetically sealed compressor receives said hydrogen gas from

said electrolysis unit;

20 a hydrogen tank, wherein said hydrogen tank is connected  
with said hermetically sealed compressor, and wherein said hydrogen tank  
receives said hydrogen gas from said hermetically sealed compressor;

a fuel cell, wherein said fuel cell is connected with said  
hydrogen tank, and wherein said fuel cell receives said hydrogen gas from said  
hydrogen tank; and

25 a system controller, wherein said system controller is  
connected with said solar panel, said AC power source, said electrolysis unit,  
said hermetically sealed compressor, and said hydrogen tank.

23. The hydrogen-powered vehicle of claim 22, wherein said  
electrolysis unit comprises:

5 an electrolysis chamber including an oxygen chamber and an  
hydrogen chamber, wherein said electrolysis chamber is connected with said  
water tank, and wherein said electrolysis chamber receives said water from said  
water tank;

a cathode located within said hydrogen chamber; and  
an anode located within said oxygen chamber.

24. The hydrogen-powered vehicle of claim 22, wherein said electrical  
energy provided by said solar panel stimulates the electrolysis of said water in  
said electrolysis chamber and produces said oxygen gas at said anode and said  
hydrogen gas at said cathode.

25. The hydrogen-powered vehicle of claim 22, wherein said electrical  
energy provided by said AC power source stimulates the electrolysis of said  
water in said electrolysis chamber and produces said oxygen gas at said anode  
and said hydrogen gas at said cathode.

26. The hydrogen-powered vehicle of claim 22, wherein said hydrogen gas is collected in said hydrogen chamber of said electrolysis chamber.

27. The hydrogen-powered vehicle of claim 22, wherein said oxygen is collected in said oxygen chamber of said electrolysis chamber.

28. A method for generating power by utilizing the electrolysis of water and solar energy, comprising the steps of:

providing a solar panel that receives solar rays and generates electrical energy;

5 providing a source of water;

connecting an electrolysis unit including an anode and a cathode with said solar panel and said source of water;

filling said electrolysis unit with said water;

adding an electrolyte to said water in said electrolysis unit;

10 providing said electrical energy generated by said solar panel to said anode and said cathode of said electrolysis unit;

producing oxygen gas and hydrogen gas with said electrolysis unit;

15 connecting a hermetically sealed compressor with said electrolysis unit,

directing said hydrogen gas to said hermetically sealed compressor;

providing a hydrogen tank and connecting said hydrogen tank with said hermetically sealed compressor;

20 pumping said hydrogen gas into said hydrogen tank with said hermetically sealed compressor;

connecting a fuel cell with said hydrogen tank;

delivering said hydrogen gas from said hydrogen tank to said fuel cell; and

25                               generating electrical energy with said fuel cell.

29.     The method for generating power by utilizing the electrolysis of water and solar energy of claim 28, further comprising the step of maintaining a pH Value of said water in said electrolysis unit between 6 and 7.

30.     The method for generating power by utilizing the electrolysis of water and solar energy of claim 28, further comprising the step of powering a vehicle with said electrical energy generated by said fuel cell.

31.     A method for generating power by utilizing the electrolysis of water and solar energy, comprising the steps of:

          providing a solar electrolysis power source including:

                  a source of water;

5                               an electrolysis unit, wherein said electrolysis unit is connected with said source of water and receives water from said source of water, and wherein said electrolysis unit provides the electrolysis of said water and produces hydrogen gas and oxygen gas;

                  a solar panel, wherein said solar panel is connected with  
10       said electrolysis unit, and wherein said solar panel receives solar rays and provides electrical energy to said electrolysis unit;

                  an AC power source, wherein said AC power source is connected with said electrolysis unit, and wherein said AC power source provides electrical energy to said electrolysis unit;

15                               a hermetically sealed compressor, wherein said hermetically sealed compressor is connected with said electrolysis unit, and wherein said hermetically sealed compressor receives said hydrogen gas from said electrolysis unit;

                  a hydrogen tank, wherein said hydrogen tank is connected  
20       with said hermetically sealed compressor, and wherein said hydrogen tank

receives said hydrogen gas from said hermetically sealed compressor;  
a fuel cell, wherein said fuel cell is connected with said hydrogen tank, and wherein said fuel cell receives said hydrogen gas from said hydrogen tank; and  
25 a system controller, wherein said system controller is connected with said solar panel, said AC power source, said electrolysis unit, said hermetically sealed compressor, and said hydrogen tank;  
generating electrical energy with said solar panel;  
filling said electrolysis unit with said water;  
30 providing said electrical energy generated by said solar panel to said electrolysis unit;  
producing oxygen gas and hydrogen gas with said electrolysis unit through electrolysis of said water;  
directing said hydrogen gas to said hermetically sealed  
35 compressor;  
pumping said hydrogen gas into said hydrogen tank with said hermetically sealed compressor;  
delivering said hydrogen gas from said hydrogen tank to said fuel cell; and  
40 generating electrical energy with said fuel cell.

32. The method for generating power by utilizing the electrolysis of water and solar energy of claim 31, further comprising the step of venting said oxygen gas into the atmosphere.

33. The method for generating power by utilizing the electrolysis of water and solar energy of claim 31, further comprising the step of powering a portable power tool with said electrical energy generated by said fuel cell.

34. The method for generating power by utilizing the electrolysis of water and solar energy of claim 31, further comprising the steps of:

providing an AC power source;

connecting said AC power source with said electrolysis unit; and

providing electrical energy to said electrolysis unit.

5